

# Work Order ID 77312

**\*77312\***

Page 1

December-02-11 9:59:48 AM

Item ID: D105-674-011G

Accept

**\*N900040100\***

Setup Start

**\*NS1\***

Revision ID:

Stop

**\*NS2\***

Item Name: Skidtube, Grey

Start Date: 02/12/2011 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 16/12/2011 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Run Start

**\*NR1\***

Approvals: Process Plan: MLJ

Date: 11/12/02 Tooling:

Date:

Stop

**\*NR2\***

QC:

Date:

SPC (Y/N):

Date:

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

D2966

Rev A2

100

0.00

**\*100\***

DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile & type labels per PPP D105-674-011G

CHG002

*5/12/13*

*MLJ 12-1-13*

*①*

120

0.00

**\*120\***

BENDING MACHINE - SKIDTUBES

CNC Bend 1

Memo

0.00

CNC Delta 100 Bender

~~Bend tube as per program BO105 on CNC Bender and Dwg D2966 as per folio 1, use DT9631 bending aide~~

*N-A DP 11-12-12*

**77312.**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

**Work Order ID 77312**

December-02-11 9:59:48 AM

**\*77312\***

Page 2

Item ID: D105-674-011G

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**\*N900040100\***Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Skidtube, Grey

Start Date: 02/12/2011 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 16/12/2011 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start **\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop **\*NR2\***Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

130

0.00

**\*130\***

Skidtubes

Skidtubes

Skidtubes

Memo

1-&gt; Pull D2966-1-Reint 0.00

1-Cut Fwd end of the tube using DT8185

2-Cut Aft end at 107.06" using DT8185D

3-Deburr ends ✓

4-Drill Aft Cap holes using DT8678 ✓

5-Locate DT8679 with 1/8 clecos in Aft Cap holes. Ensure DT8679 is centered on Fwd end of tube and drill #40 Fwd bushing.

6-Clamp DT8679 to the tube. Drill all #30 wearplate and crossbolt holes.

7-Open Aft Cap holes using #6 drill

8-Open wearplate holes and two side holes to Ø19/64" (0.297") as per Dwg D2966-1.

9-Deburr holes.

10-Open remaining (16) crossbolt holes to Ø0.500

140

0.00

**\*140\***

Skidtubes

Skidtubes

Skidtubes

Memo

0.00

1-Weld Fwd Cap as per Dwg D2966 and QSI 004. Fill #40 Fwd cleco hole.

2-Grind Fwd Cap welds flush

AIR M119785

DP 12-1-4

DP 11-12-12

DP 12-1-4

1 Ø BE 12-01-04

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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**Work Order ID 77312****\*77312\***

Page 3

December-02-11 9:59:48 AM

Item ID: D105-674-011G

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**\*N900040100\***Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Skidtube, Grey

Start Date: 02/12/2011 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 16/12/2011 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	QC10- Inspect visual per QSI004- ground welds	0.00							
<b>*150*</b>									
QC	Memo	0.00							
Quality Control									
160	QC5- Inspect part completeness to step on W/O	0.00							
<b>*160*</b>									
QC	Memo	0.00							
Quality Control									
170	Chemical Conversion Coat per QSI005 4.1	0.00							
<b>*170*</b>									
HandFinish	Memo	0.00							
Hand Finishing									

① SAD 12-01-05

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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**NOTE:** Date & initial all entries

# Work Order ID 77312

**\*77312\***

Page 4

December-02-11 9:59:48 AM

Item ID: D105-674-011G Accept **\*N900040100\*** Setup Start **\*NS1\***  
 Revision ID: Stop **\*NS2\***  
 Item Name: Skidtube, Grey  
 Start Date: 02/12/2011 Start Qty: 1.00 **\*1\*** Cust Item ID:  
 Required Date: 16/12/2011 Req'd Qty: 1.00 **\*1\*** Customer:  
 Reference:

Approvals: Process Plan: Date: Tooling: Date: Run Start **\*NR1\***  
 QC: Date: SPC (Y/N): Date: Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180	QC3- Inspect Part Finish	0.00							
<b>*180*</b>						1	0	BE	12-01-05
QC	Memo	0.00							
Quality Control									
190		0.00							
<b>*190*</b>	Skidtubes					1	0	12/01/05	
Skidtubes	Memo	0.00							
Skidtubes	1-Open crossbolt holes to finish size as per Dwg D2966 2-Open 14 holes to Ø0.750" & 2 holes to Ø0.875", countersink crossbolt holes & remove alodine to prepare for welding as per Dwg D2966 3-Deburr holes inside & outside, blow out chips								

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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Page 5

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Item ID: D105-674-011G

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**\*N900040100\***

Setup Start

**\*NS1\***

Revision ID:

Stop

**\*NS2\***

Item Name: Skidtube, Grey

Start Date: 02/12/2011 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 16/12/2011 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Run Start

**\*NR1\***

Approvals:

Process Plan:

Date:

Tooling:

Date:

Stop

**\*NR2\***

QC:

Date:

SPC (Y/N):

Date:

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

200

0.00

**\*200\***

Skidtubes

Skidtubes

Memo

0.00

1-Bond Web in place per QSI 015. (Ensure holes line up)

Pick:

A/R Sikaflex-291 batch:

Sikaflex expiry date:

start time:

end time:

119508  
12/08/13  
3:30  
12-01-09 4:00

2-Weld Crossbolt Spacers as per Dwg D2966 and QSI 004. For crossbolt spacer, weld one side, pass 5/8" drill; weld other side, pass 5/8" drill.

Pick:

A/RAluminum Rod batch: m119785 BE 12-01-09

3-Pass Ø0.630" drill to remove spillover for D2973 crossbolt. Pass Ø0.750" drill to remove spillover for D2971 crossbolt.

4-Grind welds flush as per Dwg D2966

DP 12-1-10

210

QC10- Inspect visual per QSI004- ground welds

0.00

**\*210\***

QC

Memo

0.00

Quality Control

S r l a l i u

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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**NOTE:** Date & initial all entries

## Work Order ID 77312

\*77312\*

Page 6

December-02-11 9:59:48 AM

Item ID: D105-674-011G

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Skidtube, Grey

Start Date: 02/12/2011 Start Qty: 1.00

\*1\*

Cust Item ID:

Required Date: 16/12/2011 Req'd Qty: 1.00

\*1\*

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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220

QC5- Inspect part completeness to step on W/O

0.00

\*220\*

QC

Memo

0.00

Quality Control

225

Chemical Conversion Coat per QSI005 4.1

0.00

\*225\*

HandFinish

Memo

0.00

Hand Finishing

230

Grey Sandtex(Ref:4.3.5.6) per QSI005 4.3

0.00

\*230\*

Powdercoat

Memo

0.00

Powder Coating

START TIME: 1:15

OVEN TEMPERATURE: 320°F

FINISH TIME: 1:45

W118489

1Xφ M/L 12/04/10

1Xφ M/L 12/01/11

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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## Work Order ID 77312

\*77312\*

Page 7

December-02-11 9:59:48 AM

Item ID: D105-674-011G

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Skidtube, Grey

Start Date: 02/12/2011 Start Qty: 1.00

\*1\*

Cust Item ID:

Required Date: 16/12/2011 Req'd Qty: 1.00

\*1\*

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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240

QC3- Inspect Part Finish

0.00

\*240\*

QC

Memo

0.00

Quality Control

1 BR 12-1-12

250

HandFinishing

0.00

\*250\*

HandFinish

Memo

0.00

Hand Finishing

1 BR 12-1-12

1-Inspect for foreign objects as per QSI 024

2-Install Inserts, Wearplate and Cap per Dwg D2966. Insert a drop of sikaflex at insert holes before installing wearplates. Seal Aft Cap using Sikaflex. Install bushing and nut. By looking Fwd, install nut to right hand side.

Pick:

QtyPart NumberDescriptionBatch

A/RSikaflex-291 ~~119008~~ 119443.

Sikaflex expiry date: 12-10

3-Wing Walk as per Dwg D2966 and QSI 005 4.4

Batch: 119094

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries

**Work Order ID 77312****\*77312\***

Page 8

December-02-11 9:59:48 AM

Item ID: D105-674-011G

Accept

**\*N900040100\***Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Skidtube, Grey

Start Date: 02/12/2011 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 16/12/2011 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start **\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop **\*NR2\***Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

260

QC3- Inspect Part Finish

0.00

**\*260\***

QC

Memo

0.00

Quality Control

270

QC5- Inspect part completeness to step on W/O

0.00

**\*270\***

QC

Memo

0.00

Quality Control

\*\*\*\*\*ENSURE INSERT ARE AT LOCATION (6) AS PER DWG  
D2966\*\*\*\*\*

280

Pick Kit

0.00

**\*280\***

Packaging

Memo

0.00

Packaging

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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December-02-11 9:59:48 AM

**\*77312\***

Page 9

Item ID: D105-674-011G Accept **\*N900040100\*** Setup Start **\*NS1\***  
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 Item Name: Skidtube, Grey  
 Start Date: 02/12/2011 Start Qty: 1.00 **\*1\*** Cust Item ID:  
 Required Date: 16/12/2011 Req'd Qty: 1.00 **\*1\*** Customer:  
 Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
290	QC4- 100% Inspect kits for completeness	0.00							
<b>*290*</b>		0.00							
QC	Memo								
Quality Control									
300	Packaging	0.00							
<b>*300*</b>		0.00							
Packaging	Memo								
Packaging	Identify and pack for shipping as per PPP D105-674-011G Location: _____								
310	QC21- Final Inspection - Work Order Release	0.00							
<b>*310*</b>		0.00							
QC	Memo								
Quality Control									

5/2/13

(X)

Sp 12-01-13

Rev A

12/1/14

ME  
12-01-13

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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# Picklist Print

December-02-11 9:59:52 AM

Page 1

Work Order ID: 77312

\*77312\*

Parent Item: D105-674-011G

\*D105-674-011G\*

Parent Item Name: Skidtube, Grey

Start Date: 02/12/2011

Required Date: 16/12/2011

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A04.07.07New IssueKJ/JLM  
seq110 DD verf:EC

IPP Rev:B 10.06.09 remove

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
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D2962-125		Manufactured	No			120	Each	23.0000	1	1			
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\*D2962-125\*

Outer Tube Extrusion

\*\*

SAD 11-12-12

D2966-1 Bent 11-12-12

Location

Loc Qty

Loc Code

HALL

23

17532

23

B77326

D2964

Manufactured

No

140

Each

32.0000

1

1

\*D2964\*

Cap

\*\*

BE12-01-04

Location

Loc Qty

Loc Code

LG002

32

64654

3

74719

29

D2976

Manufactured

No

200

Each

0.0000

1

1

\*D2976\*

BO 105 Skidtube I Beam

\*\*

BE 12/01/05

78267

D2971

Manufactured

No

200

Each

38.0000

1

1

\*D2971\*

Cross Bolt Spacer

\*\*

BE12-01-09

Location

Loc Qty

Loc Code

LG001

38

74720

38

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries

# Picklist Print

Page 2

December-02-11 9:59:52 AM

Work Order ID: 77312

**\*77312\***

Parent Item: D105-674-011G

**\*D105-674-011G\***

Parent Item Name: Skidtube, Grey

Start Date: 02/12/2011

Required Date: 16/12/2011

Start Qty: 1.00

Required Qty: 1.00

D2973      Manufactured      No      200      Each      76.0000      7      7

**\*D2973\***

Cross Bolt Spacer

\*\*

*BL 12-01-09*

Location      Loc Qty      Loc Code

LG002      76

14636      76

D2965      Manufactured      No      250      Each      28.0000      1      1

**\*D2965\***

Cap, 105 Skidtube

\*\*

*BL 12-1-12.*

Location      Loc Qty      Loc Code

FP001      2

77299      2

FP002      26

71371      26

D2970-1      Manufactured      No      250      Each      11.0000      1      1

**\*D2970-1\***

Wearplate

\*\*

*BL 12-1-12.*

Location      Loc Qty      Loc Code

FP016      11

48213!      11

D2970-3      Manufactured      No      250      Each      9.0000      1      1

**\*D2970-3\***

Wearplate

\*\*

*BL 12-1-12.*

Location      Loc Qty      Loc Code

FP020      9

48214!      9

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval' QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

December-02-11 9:59:52 AM

Page 3

Work Order ID: 77312

**\*77312\***

Parent Item: D105-674-011G

**\*D105-674-011G\***

Parent Item Name: Skidtube, Grey

Start Date: 02/12/2011

Required Date: 16/12/2011

Start Qty: 1.00

Required Qty: 1.00

D3176-1 Manufactured No

250 Each

14.0000 1 1

**\*D3176-1\***

Bushing

\*\*

*BL 12-1-12.*

Location

Loc Qty

Loc Code

ST039

14

37586 ✓

14

1

D3176-3 Manufactured No

250 Each

17.0000 1 1

**\*D3176-3\***

Nut

\*\*

*BL 12-1-12.*

Location

Loc Qty

Loc Code

ST039

17

44896 ✓

17

1

ALS7-1032-130 Purchased No

250 Each

1,793.000 36 36

**\*AI S7-1032-130\***

Insert

\*\*

*BL 12-1-12*

*\*ALS7-1032-130.*

Location

Loc Qty

Loc Code

ST280

392

117717

27

118966

86

119775

279

ST281

221

119794

221

ST282

1180

119530

1180

*36.*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Picklist Print

December-02-11 9:59:52 AM

Work Order ID: 77312

\*77312\*

Parent Item: D105-674-011G

\*D105-674-011G\*

Parent Item Name: Skidtube, Grey

Start Date: 02/12/2011

Required Date: 16/12/2011

Start Qty: 1.00

Required Qty: 1.00

MS27039-1-08

Purchased

No

250

Each

1,585.000

26

26

\*MS27039-1-08\*

Screw

\*\*

BL 12-1-12

## Location

## Loc Qty

## Loc Code

ST291

1585

117423

101

118378

84

118910

400

119075

500

119109

500

26

AN960JD10L

\*NAS1149D0332J

Purchased

No

250

Each

0.0000

28

28

\*AN960JD10L \*

Washer

M119042

\*\*

28

BL 12-1-12

MS27039-1-09

Purchased

No

250

Each

463.0000

2

2

\*MS27039-1-09\*

Screw

\*\*

BL 12-1-12

## Location

## Loc Qty

## Loc Code

FP-B

169

18057

169

ST291

294

111650

294

2

D2972

Manufactured

No

290

Each

75.0000

6

\*D2972\*

Bushing

\*\*

12/1/13

## Location

## Loc Qty

## Loc Code

ST028

75

33544

44

44160

31

6

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval' QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

December-02-11 9:59:52 AM

Page 5

Work Order ID: 77312

**\*77312\***

Parent Item: D105-674-011G

**\*D105-674-011G\***

Parent Item Name: Skidtube, Grey

Start Date: 02/12/2011

Required Date: 16/12/2011

Start Qty: 1.00

Required Qty: 1.00

D2974

Manufactured No

290 Each

45.0000

1

**\*D2974\***

Packer

\*\*

Location

Loc Qty

Loc Code

ST028

45

71997

45

D2975

Manufactured No

290 Each

14.0000

2

**\*D2975\***

Wearshoe

\*\*

Location

Loc Qty

Loc Code

ST497A

14

69079

3

~~74721~~

11

AN4-51A

Purchased No

290 Each

184.0000

3

**\*AN4-51A\***

Bolt

\*\*

Location

Loc Qty

Loc Code

ST361

184

118706

50

119127

50

119798

84

AN960JD10L

NAS1149D0332J

Purchased

No

290 Each

0.0000

8

**\*AN960JD10L \***

Washer

\*\*

8  
1119042 12/11/13

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

December-02-11 9:59:52 AM

Page 6

Work Order ID: 77312

**\*77312\***

Parent Item: D105-674-011G

**\*D105-674-011G\***

Parent Item Name: Skidtube, Grey

Start Date: 02/12/2011

Required Date: 16/12/2011

Start Qty: 1.00

Required Qty: 1.00

MS21042L4

Purchased

No

290

Each

10,398.00

3

3

\*\*

**\*MS21042I 4\***

Nut

## Location

## Loc Qty

## Loc Code

ST300

531

117441

51

117601

347

118451

133

ST516

4867

119017

4867

ST518

5000

119075

5000

MS27039-1-08

Purchased

No

290

Each

1,585.000

8

8

\*\*

**\*MS27039-1-08\***

Screw

## Location

## Loc Qty

## Loc Code

ST291

1585

117423

101

118378

84

118910

400

119075

500

119109

500

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



DESIGN RF	DRAWN BY RF	DART AEROSPACE USA, INC. BELLEVUE, WA	
CHECKED [Signature]	APPROVED [Signature]	DRAWING NO. D2966	REV. A SHEET 1 OF 2
DATE 00.03.08		TITLE BO 105 SKIDTUBE ASSEMBLY SCALE NTS	
A	00.03.08	NEW ISSUE	

RELEASED  
00.05.11 [Signature]

Qty	Part Number	Description
X	D2966-041	SKIDTUBE ASSEMBLY
1	D2962-125	EXTRUSION
1	D2964	CAP
1	D2965	CAP
1	D2970-1	WEARPLATE
1	D2970-3	WEARPLATE
1	D2971	CROSS BOLT SPACER
7	D2973	CROSS BOLT SPACER
1	D2976	WEB
36	ALS7-1032-130 or ALS4-1032-130 or AKS7-1032-130 or AKS4-1032-130	INSERT
28	AN960JD10L	WASHER
26	MS27039-1-08	SCREW
2	MS27039-1-09	SCREW
1	D3176-1	BUSHING
1	D3176-3	NUT

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 77312

M.C.J

11/12/02



#### GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) WELDING TO BE DONE PER DART QSI 004.
- 3) INSERT D2976 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241/-291 ADHESIVE PER DART QSI 015 AFTER BENDING.
- 4) USE DART DRILL TEMPLATE DT8451 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTION B-B (34 PLACES) AFTER FINISH. SEAL WEARPLATE SCREWS WITH SIKAFLEX-241/-291.
- 5) DO NOT INSTALL MS27039-1-08 SCREWS AND AN960JD10L WASHERS IN THESE LOCATIONS.
- 6) INSTALL ALS7-1032-130 INSERT, MS27039-1-08 SCREW, AND AN960JD10L WASHER IN 2 PLACES THIS LOCATION BEFORE POWDER COATING.
- 7) FINISH:

ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2976 WEB  
POWDER COAT ASSEMBLY GLOSS WHITE (REF 4.3.6.4) PER DART QSI 005 4.3  
BLACK ANTI-SKID PAINT AS INDICATED TO 1.00 ABOVE CENTER LINE PER DART  
QSI 005 4.4 (OPTIONAL) BLACK SANDTEX (REF 4.3.5.7)



# 01.01.24  
(P 01.01.30)

A2	02.10.30	ADD D3176-1/-3	[Signature]
A1	01.01.24	CHANGE COLOR TO BLACK SANDTEX	[Signature]

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

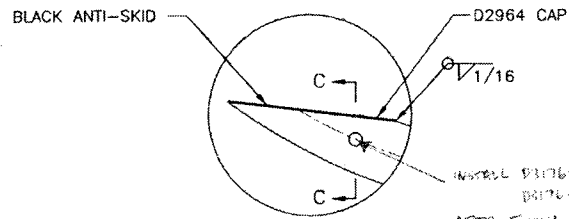
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

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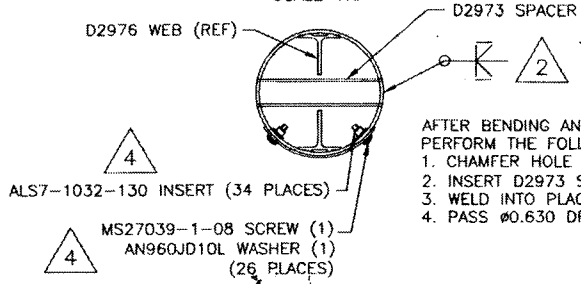


77312

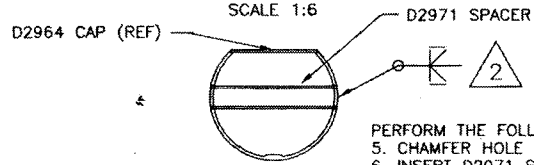
DETAIL A  
SCALE 1:3



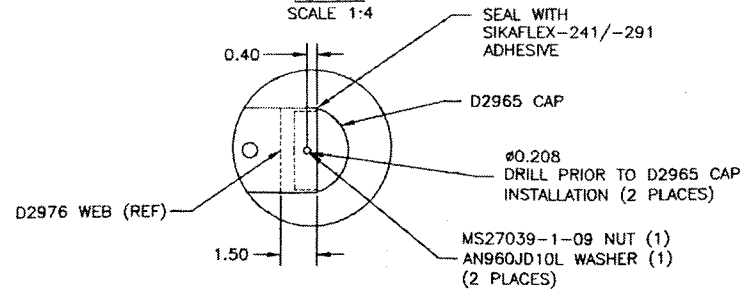
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SCALE 1:6



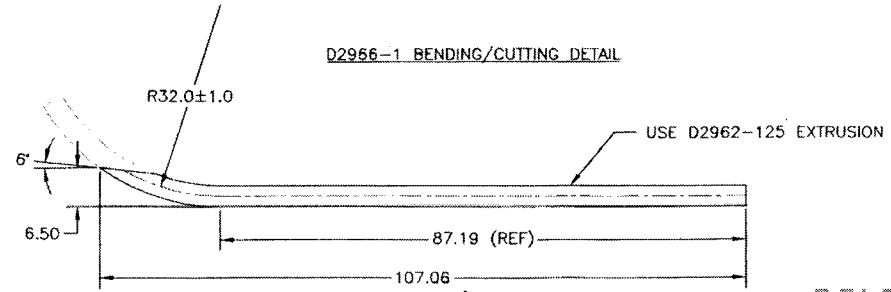
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SCALE 1:6



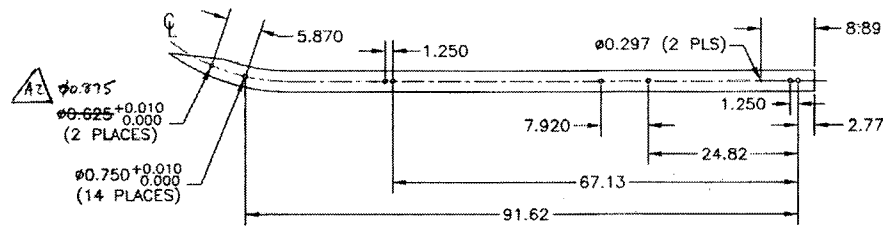
DETAIL D  
SCALE 1:4



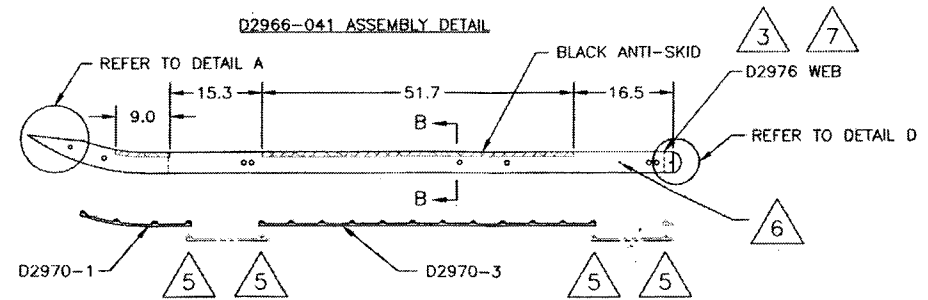
D2966-1 BENDING/CUTTING DETAIL



D2966-1 DRILLING DETAIL



D2966-041 ASSEMBLY DETAIL



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DATE 00.03.08		TITLE BO 105 SKIDTUBE ASSEMBLY		REV. A SHEET 2 OF 2 SCALE 1:20

RELEASED  
00-05-11

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries

NO. 259

AWS D17.1.2001  
QUALIFICATION TEST RECORD

Name: Barclay Elliott  
Job number: B68574  
Part number: D105-674-0110  
Description: ICS  
Welding Process: Tig~~M~~ Mig~~[ ]~~  
Base material: Aluminum  
Current: AC~~[X]~~ DC~~[ ]~~

TEST REQUIREMENTS AND RESULTS

Visual: pass~~[X]~~ fail~~[ ]~~  
Penetration: pass~~[X]~~ fail~~[ ]~~

UNACCEPTABLE

Cracks: pass~~[X]~~ fail~~[ ]~~  
Undercut: pass~~[X]~~ fail~~[ ]~~  
Pin holes: pass~~[X]~~ fail~~[ ]~~  
Overlap (cold lap): pass~~[X]~~ fail~~[ ]~~  
Porosity (surface): pass~~[X]~~ fail~~[ ]~~  
Coloration: pass~~[X]~~ fail~~[ ]~~

Qualifier Lat. Dunn Date of Test Coupon 11-06-30

Welder Barclay Elliott Date of Test Coupon 11-06-30

The above named individual is qualified in accordance with AWS D17.1.2001 to weld